

# 2009 Compensatory Mitigation Monitoring Report

**L.E. CARPENTER & COMPANY**

***170 North Main Street  
Block 301, Lot 1 and Block 801, Lot 3***

Borough of Wharton  
Morris County, New Jersey

**NJDEP File #1439-04-0001.1**

**(JFNew Project #040229)**

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**December 15, 2009**

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## **INTRODUCTION**

L.E. Carpenter & Company (LEC) implemented a Remedial Action Work Plan (RAWP) for the impacted portion of their  $\pm$  14.6-acre site (approximately 4.7 acres of disturbed area) located at 170 North Main Street, Borough of Wharton, Morris County, New Jersey (Figure 1). The site comprises Block 301, Lot 1 and Block 703, Lot 30 on the Borough of Wharton tax map. The project area is located in the USGS Dover, New Jersey quadrangle with center state plane coordinates of N 754326.5 E 470891.83 (NAD 1983) (Figure 2). A 2007 aerial photograph of the project site is also included (Figure 3).

Due to the parcel's previous utilization for mining and forging throughout the 1700's and 1800's, and vinyl manufacturing from 1943 to 1987, contaminated soils and groundwater were identified on the site. RMT, Inc. (RMT), on behalf of LEC, worked with the U.S. Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection (NJDEP) to implement the RAWP for those impacted areas of the property.

As part of the RAWP, several "Hot Spots" (areas exhibiting either inorganic or organic contaminant concentrations in soil in excess of the 1994 Record of Decision (ROD) cleanup criteria) were identified across the site for removal. Several areas identified for contaminant removal overlapped with jurisdictional wetlands on site. Under NJDEP Authorization for Freshwater Wetlands Statewide General Permit No. 4, File No. 1439-04-0001.1, a total of 0.337 acre of jurisdictional wetlands was temporarily impacted as a result of site remediation activities (Figure 4). This acreage consisted of a 0.003 acre and 0.009 acre lobe of forested/scrub-shrub wetland on site, 0.286 acre of forested/scrub-shrub and emergent marsh wetland to the east on the Wharton Enterprise property, and 0.039 acre of the Air Products open-water drainage channel relocation to the northeast. Due to the fact that project activities and wetlands extend off site onto adjacent properties, the project area or site referenced in this plan includes the LEC parcel, several acres of the Wharton Enterprises parcel to the east, and the Air Products drainage channel to the northeast.

Upon completion of cleanup activities, the entire 0.337 acre of wetland disturbance was restored and enhanced as more diverse emergent wetland communities. All temporary wetland impacts were restored and mitigated for at their current locations. A Wetland Mitigation Construction Final Report, dated August 28, 2005, was submitted to the NJDEP upon completion of restoration activities.

The main source of hydrology for the restored wetland is a direct surface water flow from the Rockaway River. The wetland area was restored to pre-cleanup grades. The intention was to restore and enhance the pre-existing wetland so that there is no-net loss of wetlands as a result of the clean-up work completed by LEC.

The primary means through which wetland vegetation will be established in the mitigation area is through planting native seed and bare root stock trees, as well as natural colonization from the adjacent wetland areas. For a list of planted species within the mitigation area and transition zone, see Appendix A.

## **MONITORING**

Annual monitoring of the mitigation area is proposed for five years, unless it is apparent the wetland has been successfully established sooner, upon which case the permittee will propose elimination of any subsequent reports in writing to the NJDEP. Only upon written concurrence from the NJDEP will any reporting requirements be eliminated.

LEC will submit annual reports to the NJDEP by December 31 of each monitoring year in accordance with the requirements outlined in the NJDEP Mitigation Project Monitoring Reports Checklist for Completeness. The monitoring reports will, at a minimum, include the following:

1. Photographs of the wetland mitigation areas.
2. Assessment of vegetative communities and evaluation of whether a dominance of wetland species exists (according to federal wetland indicator status of species identified).
3. Wildlife utilization evaluation.
4. Hydrology evaluation.
5. Soil evaluation.
6. Sediment loading evaluation.
7. Evaluation of sideslope and transition area conditions. Evaluation of overall progress toward successful achievement of wetland creation as designed, per each of the performance standards dictated for the project. Perform a comparative assessment between existing conditions and the performance standards.

This document will serve as the fifth annual monitoring report.

## **METHODS**

A spring site visit was completed on May 28, 2009 followed by a thorough review of the mitigation site on September 1, 2009. During the May visit, conditions were cloudy and breezy with a temperature of 66° F while conditions were sunny and 60° F during the September site visit. During the May 28 and September 1 site visits, the invasive species of purple loosestrife (*Lythrum salicaria*) and reed canary grass (*Phalaris arundinacea*) were chemically treated.

The wetland was walked using the random meander method. All plant species encountered during the walk-through were recorded on inventory data sheets until no new plant species were observed (Appendix B). Plant names were used as listed in Gleason and Cronquist (1991).

Three permanent transects were set up in order to measure percent cover of vegetation in the wetland (Figure 4). Several 1-m<sup>2</sup> plots were laid along the transect in order to measure the vegetative cover. A percent cover value was assigned to each species found in the plots. Total vegetative cover was calculated by averaging the vegetative cover from each plot along the transect (Appendix B).

Information on hydrology was collected using evidence provided by soil pits. Permanent reference points were located at the beginning of each transect so that water levels are recorded in the same location from year-to-year. The site was also inspected for problems such as erosion, sedimentation, and water quality issues. Signs of wildlife use were recorded during the walk-through. Finally, permanent photopoint locations were identified and reference photographs were taken.

## **VEGETATIVE COMMUNITY**

The data from the plots was used to describe the vegetative cover. Of the total wetland and transition areas, an average of 99% was vegetated and 1% was bare soil. The total vegetative cover in the emergent (100%) and forested (98%) zones has remained high and supports the qualities of well-functioning wetland areas. The total number of species has increased in both the emergent and forested zones, and the actual vegetative cover by native wetland indicator species has also increased in both zones from 2008 (Tables 1 and 2). The total number of species in the transition zone slightly decreased from the number of species in 2008, yet remains high considering the small size of the transition zone (Table 3).

Dominant species, based on relative cover (RC), in the emergent zone include reedtop (*Agrostis gigantea*) (23.6% RC), tickle grass (*Agrostis hyemalis*) (13.6% RC), common plantain (*Plantago major*) (11.0%), and tall goldenrod (*Solidago altissima*) (8.6% RC). Dominant species in the forested/scrub-shrub zone include tickle grass (24.8% RC), grass-leaved goldenrod (*Euthamia graminifolia*) (8.9% RC), reedtop (8.4%), and common plantain (8.1%). Dominant species in the transition zone include grass-leaved goldenrod (17.6% RC), birdfoot trefoil (*Lotus corniculata*) (14.4%), side oats grama (*Bouteloua curtipendula*) (13.4%), and switchgrass (*Panicum virgatum*) (8.0% RC).

**Table 1. A summary of species diversity in the emergent zone**

<b>Year</b>	<b>Total # Species</b>	<b># Native Wetland Indicator Species (NWIS)</b>	<b># Native Species</b>	<b>Percent Vegetative Cover</b>	<b>Percent Actual Vegetative Cover by NWIS</b>
2005	49	19 (39%)	29 (59%)	77%	11%
2006	46	24 (52%)	31 (67%)	90%	38%
2007	56	36 (64%)	44 (79%)	78%	31%
2008	48	24 (50%)	32 (67%)	89%	39%
2009	71	39 (55%)	50 (70%)	100%	41%

**Table 2. A summary of species diversity in the forested/scrub-shrub zone**

Year	Total # Species	# Native Wetland Indicator Species (NWIS)	# Native Species	Percent Vegetative Cover	Percent Actual Vegetative Cover by NWIS
2005	51	23 (45%)	34 (67%)	82%	10%
2006	53	29 (55%)	41 (77%)	98%	26%
2007	54	23 (43%)	36 (67%)	82%	41%
2008	70	37 (53%)	48 (69%)	98%	53%
2009	76	36 (47%)	55 (72%)	98%	55%

**Table 3. A summary of species diversity in the transition zone**

Year	Total # Species	# Native Wetland Indicator Species (NWIS)	# Native Species	Percent Vegetative Cover
2005	37	7 (19%)	19 (51%)	62%
2006	49	10 (31%)	28 (57%)	94%
2007	63	19 (30%)	39 (62%)	100%
2008	69	14 (20%)	38 (55%)	97%
2009	61	18 (30%)	34 (56%)	99%

The following invasive species were observed within the mitigation wetlands during the 2009 monitoring visit: reed canary grass (*Phalaris arundinacea*) and purple loosestrife (*Lythrum salicaria*). These species were located in a strip approximately 10' wide around the north and east border of the emergent zone and in scattered locations through the center of the zone. In the emergent zone, purple loosestrife has steadily decreased from 7.4% RC in 2007 to 4.9% RC in 2008 and 3.8% RC in 2009. Reed canary grass returned to 2007 levels with a relative cover of 3.5% (2007-3.4% RC, 2008-2.7% RC). In the forested zone, purple loosestrife had a slightly higher relative cover in 2009 with 3.5% RC, yet remains lower than 2006 and 2007 levels (2006-5.3% RC, 2007-4.2% RC, 2.0% RC). Reed canary grass occurred for the first time in the transect data in the forested area with a relative cover of 1.2%. These species will continue to be selectively treated using wetland-approved herbicides. Annual treatments will be performed twice each year through the end of the monitoring period, or until invasive populations have been effectively controlled.

During the 2007 site visit, it was noted that all of the planted (June 28, 2005) bareroot trees and shrubs had died through a combination of drought conditions and deer predation. In May of 2008, 275 supplemental bareroot trees and shrubs were installed (Appendix A) with predator guards, to encourage survivorship to meet mitigation requirements. During the August 28, 2008 site visit, 165 trees and shrubs were sampled to determine survival. Of the 165 sampled trees, a total of 73 live trees were counted (44.2% survival). During the September 1, 2009 site visit, the total number of live trees sampled was 61 (37% survival).

## **MAINTENANCE**

Invasive or noxious vegetation can oftentimes prevent or hinder the successful establishment of native species in a wetland mitigation area. For this reason, a routine wetland maintenance program is being implemented at the LEC project site. This program includes semi-annual site visits to assess and treat (if necessary) any invasive species found on the property. Based on knowledge of the site and adjacent communities, chemical applications have been selected as the most effective maintenance tool for control of invasive species. Invasive species on the site were chemically treated on May 28 and September 1, 2009.

Any potential browsing damage by herbivores will be noted and addressed during routine maintenance site visits. Should the need arise, deer or goose fencing will be erected around the seeded areas to promote growth and restrict grazing or browsing. As stated earlier, all tree and shrub plantings in May 2008 were installed with predator guards to reduce possible herbivory.

Subsequent to permit issuance and after the restored wetland areas had been planted, several federal agency personnel raised a concern over the use of barnyard grass (*Echinochloa crusgalli*) in the wetland restoration seed mix. Due to the fact that several respected botanical sources disagree on the status of barnyard grass as a native versus non-native species, it was decided that barnyard grass populations on the project site will be monitored. If at any time it is determined that barnyard grass is having a detrimental effect on the mitigation area or prohibiting the establishment of other native species, it will be effectively controlled during the semi-annual maintenance site inspections. At this time, barnyard grass does not appear to be a long-term concern.

## **HYDROLOGY AND WATER QUALITY**

Site conditions in 2009 were wetter than those in 2008. During the September 1 site visit, the hydrology was dry to moist with saturation at the soil surface. The wettest areas occurred in the eastern end of the wetland area with up to 2 inches of inundation. During the May 28 site visit, hydrology was present throughout the emergent and forested zones ranging from saturation at the surface to 4 inches of inundation in the eastern portion of the wetland.

## **WILDLIFE HABITAT**

Evidence of wildlife use was present in the mitigation wetland (Table 4). The presence of white-tailed deer and Canada Goose continue to be evident, though herbivory by these species does not appear to have caused detrimental harm to the herbaceous species. The complete loss of all planted trees in 2005 may be directly related to the herbivory by white-tailed deer.



**Table 4. Comprehensive list of wildlife observations in the mitigation wetland**

SCIENTIFIC NAME	COMMON NAME
<b>BIRDS</b>	
<i>Cyanocitta cristata</i>	Blue Jay
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<i>Branta canadensis</i>	Canada Goose*
<i>Zenaida macroura</i>	Mourning Dove*
<i>Colaptes auratus</i>	Northern Flicker
<i>Melospiza melodia</i>	Song Sparrow*
<b>AMPHIBIANS</b>	
<i>Rana clamitans</i>	Green frog*
<b>MAMMALS</b>	
<i>Odocoileus virginianus</i>	White-tailed deer*
<b>INSECTS</b>	
<i>Papilio glaucus</i>	Tiger swallowtail
Family <i>Acrididae</i>	3 species of short-horned grasshoppers*
Order <i>Mantodea</i>	Praying mantis species*

\*Observed in 2009

## **SOILS**

During the 2009 site visit, soil characteristics and textures were not specifically examined due to the fact that this had previously been done in June 2005. Results of the soil profile review were presented in the Wetland Mitigation Construction Final Report, dated August 28, 2005, and are again presented below (Table 5).

**Table 5. Soil profile review**

	Soil Depth	Munsell Soil Color	Soil Texture
Boring 1 (40.54.15.00748N 74.34.31.41719W)	0-10" 10-20"	10YR 4/3 10YR 3/3	Loam Loam
Boring 2 (40.54.14.42438N 74.34.31.14259W)	0-13" 13-20"	10YR 4/2 10YR 3/2	Loamy clay Loamy clay
Boring 3 (40.54.13.75148N 74.34.31.31904W)	0-15" 15-20"	10YR 4/3 10YR 3/1	Loam Loamy clay
Boring 4 (40.54.13.94790N 74.34.29.98567W)	0-2" 2-20"	10YR 4/3 10YR 3/2	Loam Loam
Boring 5 (40.54.14.63046N 74.34.29.45719W)	0-9" 9-20"	10YR 4/3 10YR 3/2	Loam Loam
Boring 6 (40.54.12.80847N 74.34.34.70682W)	0-20"	10YR 3/3	Loam



## **SEDIMENTATION AND EROSION CONTROL**

There were no signs of erosion problems on the days the site was investigated. The potential for erosion issues has decreased due to the site's increased vegetative cover. It is expected that as the vegetative cover of the mitigation area continues to increase, the potential for erosion will be effectively eliminated.

## **CONCLUSIONS**

The mitigation area was constructed during an extremely dry growing season, and late installation of seed and bare root trees, as well as herbivory by white-tailed deer and Canada Goose, were causes for the slow development of the mitigation wetland areas. During the May 29, 2008 site visit, 275 bare root trees and shrubs were installed with predator guards to compensate for the complete mortality of the 2005 woody plant installation. The actual percent cover by native wetland species has continually increased since construction of the site, but still remains lower than the required 85% cover by native wetland species. Tree survivorship is also currently below the required 85% survival rate and 5-foot minimum height.

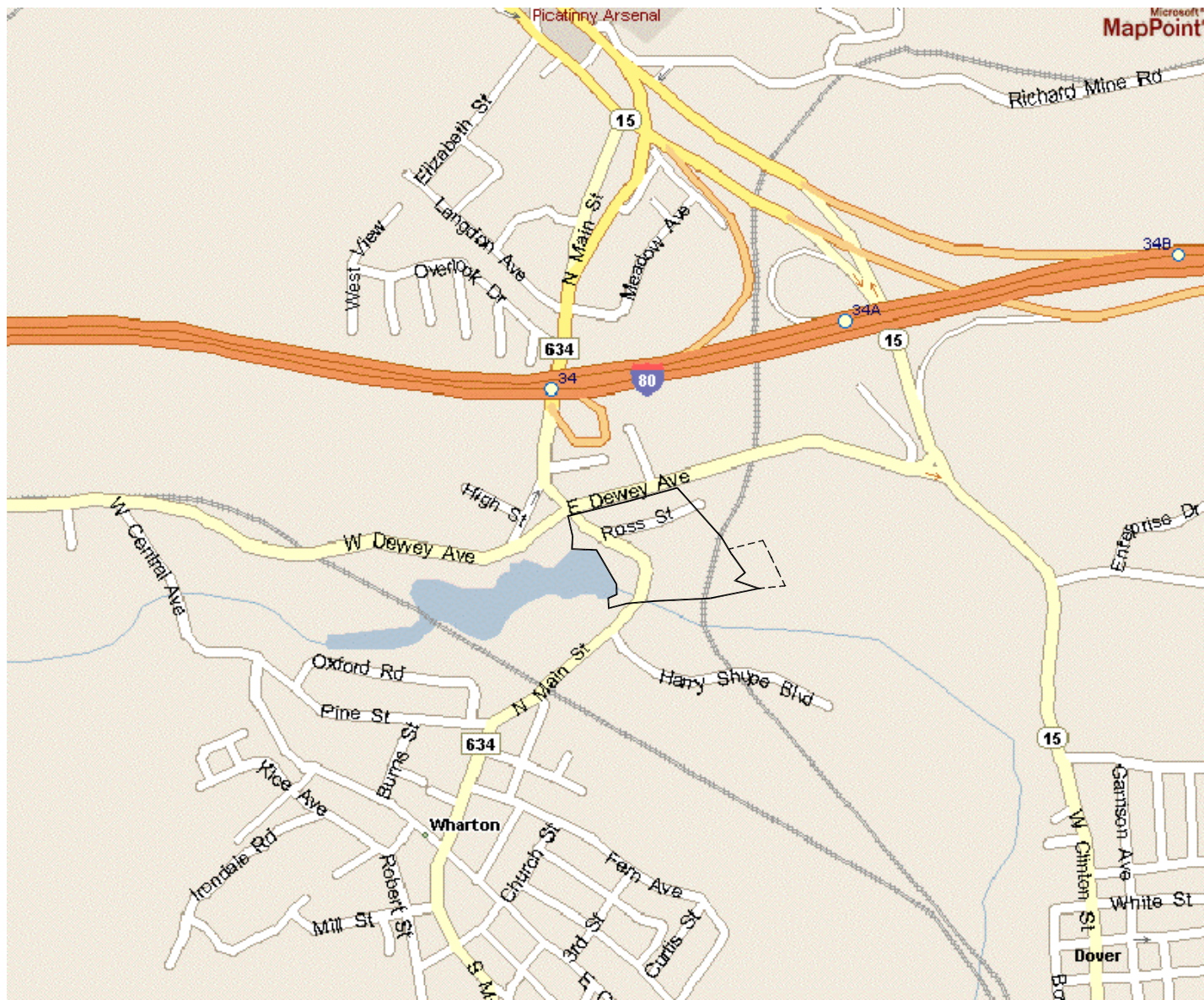
In 2009, regulatory oversight of remediation activities on the property was transferred to the U.S. Environmental Protection Agency. At this time, it is apparent that additional site monitoring and soil remediation will be required on the site in 2010. Portions of this work will likely be required within wetland and transition zone boundaries. For this reason, no additional wetland restoration area or transition zone revegetation or supplemental planting efforts are proposed at this time. Once all intrusive activities are quantified and subsequently completed within wetland and transition areas on site, further consideration may be given to supplemental planting efforts if required.

At this time, LEC will continue annual monitoring and invasive species control events two times per year as required by permit conditions until agency sign-off is obtained.

## **REFERENCES**

Gleason, Henry and Arthur Cronquist. 1991. *Manual of Vascular Plants of North-eastern United States and Adjacent Canada*. D. Van Nostrand Company, New York, New York. 910 pp.

# Figures



## LEGEND



- APPROXIMATE PROPERTY BOUNDARY



- EXPANDED PROJECT AREA



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## FIGURE 1 - LOCATION MAP

L.E. CARPENTER  
WHARTON, NEW JERSEY

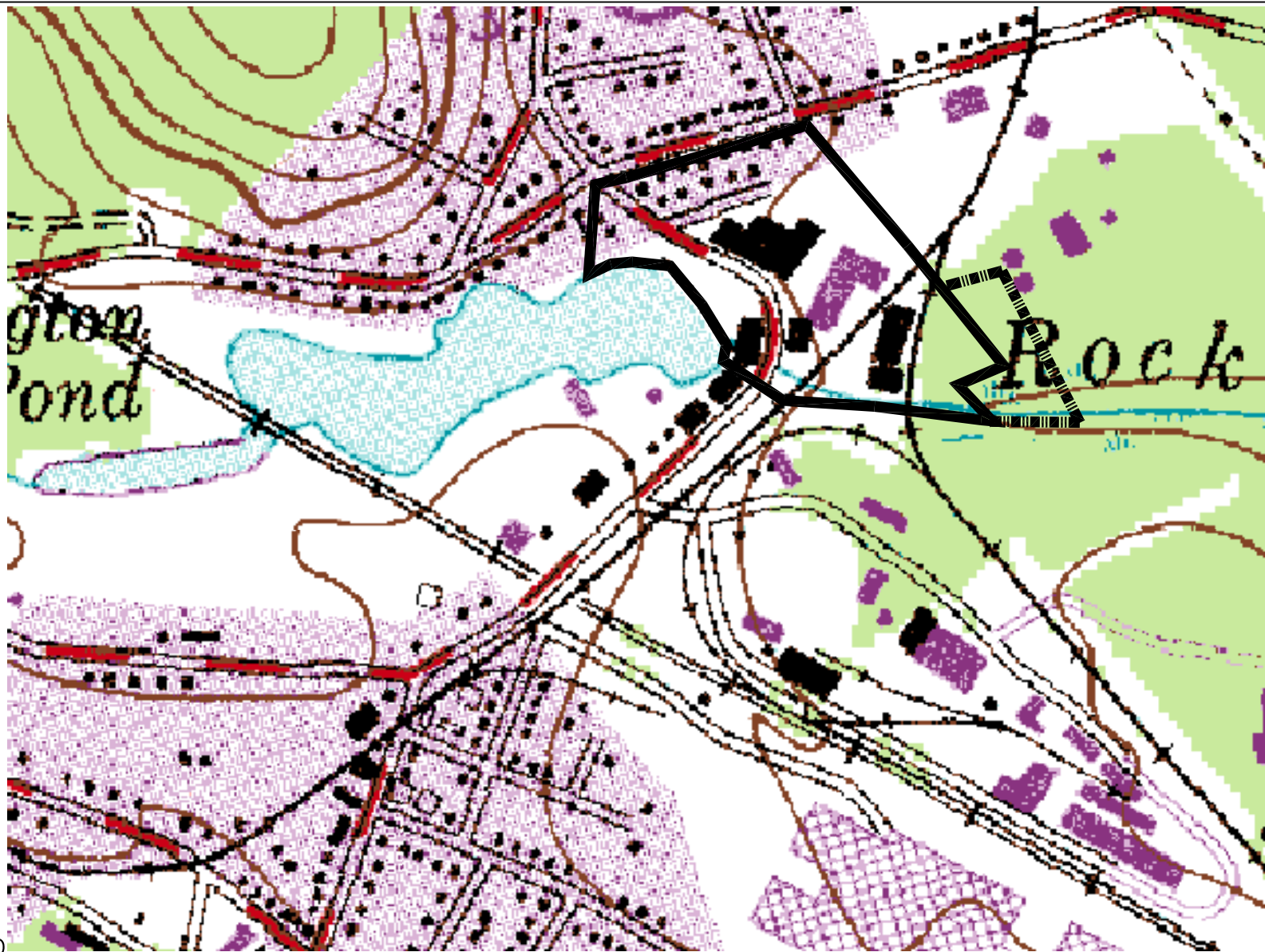


SCALE: NTS

DATE: 09.23.04

FILE: 040229LocationMap





# LEGEND



- APPROXIMATE PROPERTY BOUNDARY



- EXPANDED PROJECT AREA

## NOTES

STATE PLANE COORDINATES -  
754326.58N 470891.83E (NAD83)

SOURCE:USGS DOVER,NJ QUADRANGLE

HUC-14 CODE 02030103030070



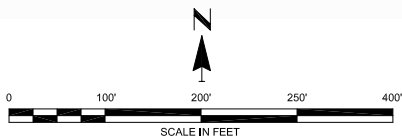
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## FIGURE 2 - USGS MAP

L.E. CARPENTER  
WHARTON, NEW JERSEY



SCALE: NTS  
DATE: 12.12.2005  
FILE: 040229USGSmap



**NOTES**

1. AERIAL PHOTOGRAPH PROVIDED BY JAMES M. STEWART, INC. LAND SURVEYORS, DATED 02-14-02.

L.E. CARPENTER  
WHARTON, NEW JERSERY

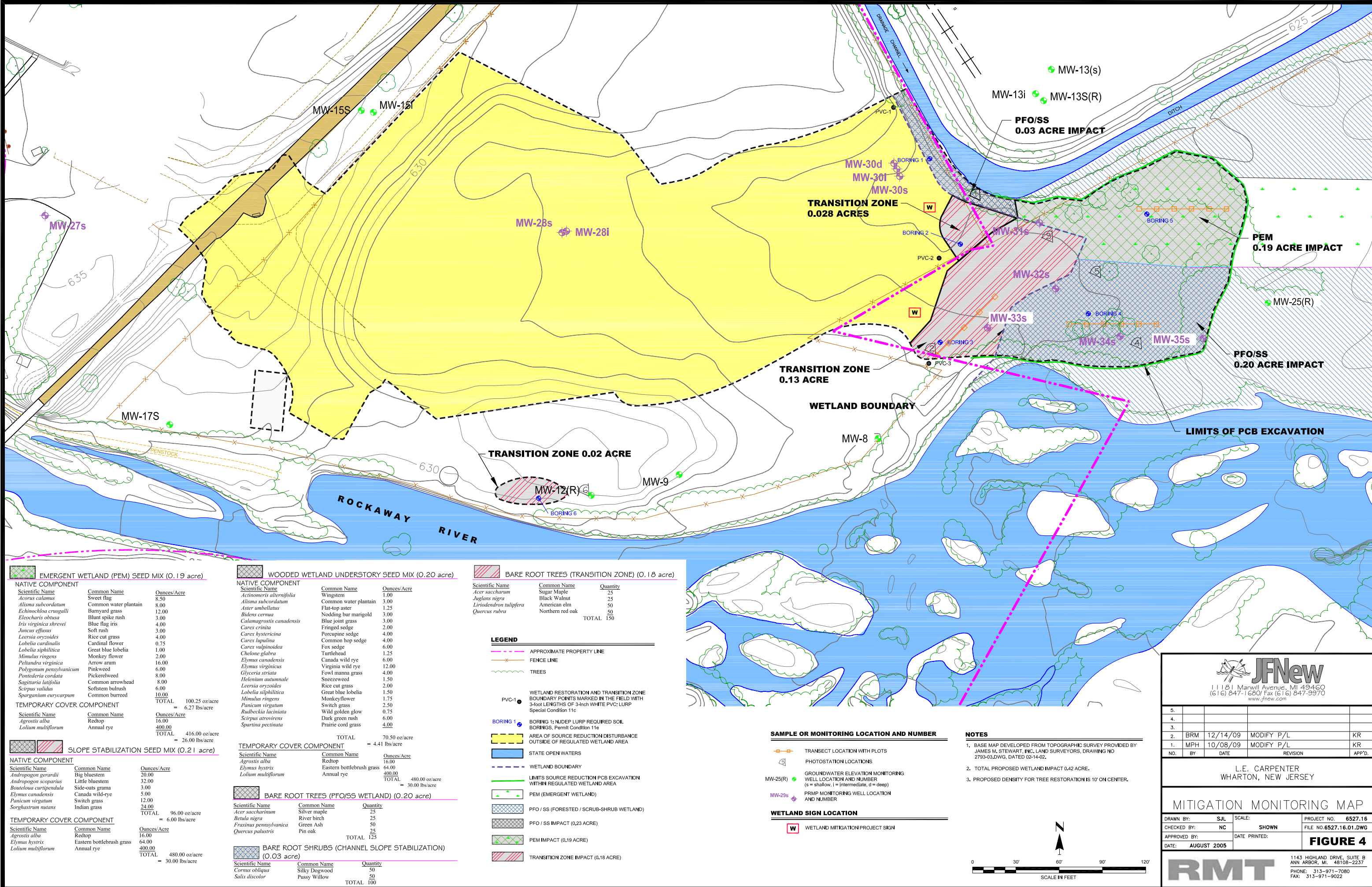
**AERIAL PHOTOGRAPH**

DRAWN BY:	S.J.L.	SCALE:	1" = 100'	PROJECT NO.	JFNG40228
CHECKED BY:	DD			FILE NO.	AERIAL.DWG
APPROVED BY:					
DATE:	08.23.04				

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5.				
4.				
3.				
2.	BRM	12/14/09	MODIFY P/L	KR
1.	MPH	10/08/09	MODIFY P/L	KR
NO.	BY	DATE	REVISION	APP'D.

L.E. CARPENTER  
WHARTON, NEW JERSEY

## MITIGATION MONITORING MAP

DRAWN BY: SJL	SCALE:	PROJECT NO. 6527.16
CHECKED BY: NC	SHOWN	FILE NO. 6527.16.01.DWG
APPROVED BY:	DATE PRINTED:	<b>FIGURE 4</b>
DATE: AUGUST 2005		

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# Appendices



# **Appendix A: Planting List**

**EMERGENT WETLAND IMPACT AREA (0.19 acre)**

**Emergent Wetland Seed Mix (32.27 pounds/acre)**

Native Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Acorus calamus</i>	Sweet flag	8.50
<i>Alisma subcordatum</i>	Common water plantain	8.00
<i>Echinochloa crusgalli</i>	Barnyard grass	12.00
<i>Eleocharis ovata</i>	Blunt spike rush	3.00
<i>Iris virginica shrevei</i>	Blue flag iris	4.00
<i>Juncus effusus</i>	Soft rush	3.00
<i>Leersia oryzoides</i>	Rice cut grass	4.00
<i>Lobelia cardinalis</i>	Cardinal flower	0.75
<i>Lobelia siphilitica</i>	Great blue lobelia	1.00
<i>Mimulus ringens</i>	Monkey flower	2.00
<i>Peltandra virginica</i>	Arrow arum	16.00
<i>Polygonum pensylvanicum</i>	Pinkweed	6.00
<i>Pontederia cordata</i>	Pickernelweed	8.00
<i>Sagittaria latifolia</i>	Common arrowhead	8.00
<i>Scirpus validus</i>	Softstem bulrush	6.00
<i>Sparganium eurycarpum</i>	Common burreed	10.00
TOTAL NATIVE FORBS AND GRASSES		100.25 = (6.27 lbs/acre)

Temporary Cover Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Lolium perenne</i>	Annual rye	400.00
TOTAL		416.00 = (26.00 lbs/acre)

## **FORESTED/SCRUB-SHRUB IMPACT AREA (0.20 acre)**

### **Wooded Wetland Understory Seed Mix (34.41 pounds/acre)**

Native Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Alisma subcordatum</i>	Common water plantain	3.00
<i>Aster umbellatus</i>	Flat-top aster	1.25
<i>Bidens cernua</i>	Nodding bur marigold	3.00
<i>Calamagrostis canadensis</i>	Blue joint grass	3.00
<i>Carex crinita</i>	Fringed sedge	2.00
<i>Carex hystericina</i>	Porcupine sedge	4.00
<i>Carex lupulina</i>	Common hop sedge	4.00
<i>Carex vulpinoidea</i>	Fox sedge	6.00
<i>Chelone glabra</i>	Turtlehead	1.25
<i>Elymus canadensis</i>	Canada wild rye	6.00
<i>Elymus virginicus</i>	Virginia wild rye	12.00
<i>Glyceria striata</i>	Fowl manna grass	4.00
<i>Helenium autumnale</i>	Sneezeweed	1.50
<i>Leersia oryzoides</i>	Rice cut grass	2.00
<i>Lobelia silphilitica</i>	Great blue lobelia	1.50
<i>Mimulus ringens</i>	Monkeyflower	1.75
<i>Panicum virgatum</i>	Switch grass	2.50
<i>Rudbeckia laciniata</i>	Wild golden glow	0.75
<i>Scirpus atrovirens</i>	Dark green rush	6.00
<i>Spartina pectinata</i>	Prairie cord grass	4.00
<i>Verbesina alternifolia</i>	Wingstem	1.00
TOTAL NATIVE FORBS AND GRASSES		70.50 = (4.41 lbs/acre)
Temporary Cover Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium multiflorum</i>	Annual rye	400.00
TOTAL		480.00 = (30.00 lbs/acre)

### **Native Trees and Shrubs**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer saccharinum</i>	Silver maple	25
<i>Betula nigra</i>	River birch	25
<i>Fraxinus pennsylvanica</i>	Green ash	50
<i>Quercus palustris</i>	Pin oak	25
TOTAL TREES		125

## **DRAINAGE CHANNEL SIDESLOPE IMPACT AREA (0.03 acre)**

### **Slope Stabilization Mix (36.00 pounds/acre)**

#### Native Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Andropogon gerardii</i>	Big bluestem	20.00
<i>Bouteloua curtipendula</i>	Side-oats grama	3.00
<i>Elymus canadensis</i>	Canada wild-rye	5.00
<i>Panicum virgatum</i>	Switch grass	12.00
<i>Schizachyrium scoparium</i>	Little bluestem	32.00
<i>Sorghastrum nutans</i>	Indian grass	<u>24.00</u>
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)

#### Temporary Cover Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium perenne</i>	Annual rye	<u>400.00</u>
TOTAL		480.00 = (30.00 lbs/acre)

### **Native Trees and Shrubs**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Cornus amomum</i>	Silky dogwood	50
<i>Salix discolor</i>	Pussy willow	<u>50</u>
TOTAL TREES		100

## **TRANSITION ZONE IMPACT AREA (0.18 acre)**

### **Slope Stabilization Mix (36.00 pounds/acre)**

Native Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Andropogon gerardii</i>	Big bluestem	20.00
<i>Bouteloua curtipendula</i>	Side-oats grama	3.00
<i>Elymus canadensis</i>	Canada wild-rye	5.00
<i>Panicum virgatum</i>	Switch grass	12.00
<i>Schizachyrium scoparium</i>	Little bluestem	32.00
<i>Sorghastrum nutans</i>	Indian grass	<u>24.00</u>
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)

Temporary Cover Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium perenne</i>	Annual rye	<u>400.00</u>
TOTAL		480.00 = (30.00 lbs/acre)

### **Native Trees and Shrubs**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer saccharum</i>	Sugar maple	25
<i>Juglans nigra</i>	Black walnut	25
<i>Liriodendron tulipifera</i>	Tulip tree	50
<i>Quercus rubra</i>	Red oak	<u>50</u>
TOTAL TREES		150

## **2008 Supplemental Plantings**

### **Native Trees and Shrubs**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer rubrum</i>	Red maple	25
<i>Acer saccharinum</i>	Silver maple	25
<i>Betula nigra</i>	River birch	25
<i>Cornus amomum</i>	Silky dogwood	25
<i>Cornus sericea</i>	Red-osier dogwood	50
<i>Liriodendron tulipifera</i>	Tulip tree	25
<i>Quercus palustris</i>	Pin oak	25
<i>Quercus rubra</i>	Red oak	25
<i>Salix nigra</i>	Black willow	25
<i>Ulmus americana</i>	American elm	<u>25</u>
TOTAL TREES/SHRUBS		275

# **Appendix B: Wetland Data Sheets**



DATA ENTRY FORM						
MITIGATION WETLAND MONITORING						
Special Site Notes: None						
Project Number: 040229			Project Name/Location: RMT/New Jersey			
General Site Conditions: Continuing to develop			Date: September 1, 2009			
Past and Present Weather: Sunny, dry			Site Hydrology: Dry to <2" of inundation			
Wildlife:						
VEGETATION SAMPLING DATA						
Transect 1: Transition Zone						
Plot Number	Species Names	Cover	Plot Number	Species Names	Cover	
Plot 1	<i>Artemisia vulgaris</i>	5%	Plot 4 (cont.)	<i>Erigeron strigosus</i>	2%	
	<i>Bouteloua curtipendula</i>	30%		<i>Euthamia graminifolia</i>	30%	
	<i>Coronilla varia</i>	15%		<i>Panicum virgatum</i>	5%	
	<i>Euthamia graminifolia</i>	25%		<i>Plantago major</i>	20%	
	<i>Panicum virgatum</i>	10%		<i>Potentilla simplex</i>	5%	
	<i>Solidago altissima</i>	15%		<i>Setaria glauca</i>	2%	
	<i>Verbena urticifolia</i>	5%		<i>Solidago altissima</i>	5%	
				<i>Solidago rugosa</i>	3%	
Plot 2	<i>Bidens frondosus</i>	2%		<i>Sorghastrum nutans</i>	5%	
	<i>Bouteloua curtipendula</i>	15%		<i>Trifolium repens</i>	7%	
	<i>Cassia nictitans</i>	2%		<i>Verbena urticifolia</i>	4%	
	<i>Cyperus strigosus</i>	5%				
	<i>Euthamia graminifolia</i>	5%	Plot 5	<i>Artemisia vulgaris</i>	8%	
	<i>Lotus corniculata</i>	50%		<i>Daucus carota</i>	2%	
	<i>Plantago lanceolata</i>	5%		<i>Elaeagnus umbellata</i>	5%	
	<i>Polygonum persicaria</i>	1%		<i>Euthamia graminifolia</i>	20%	
	<i>Rubus allegheniensis</i>	2%		<i>Juncus effusus</i>	3%	
	<i>Setaria glauca</i>	2%		<i>Lythrum salicaria</i>	1%	
	<i>Sorghastrum nutans</i>	2%		<i>Panicum virgatum</i>	25%	
	<i>Verbena hastata</i>	3%		<i>Plantago major</i>	15%	
	<i>Verbena urticifolia</i>	1%		<i>Potentilla simplex</i>	10%	
				<i>Setaria glauca</i>	2%	
Plot 3	<i>Ambrosia artemisiifolia</i>	5%			<i>Sisyrinchium angustifolium</i>	2%
	<i>Apocynum cannabinum</i>	5%			<i>Solidago altissima</i>	10%
	<i>Artemisia vulgaris</i>	10%			<i>Verbena urticifolia</i>	2%
	<i>Bouteloua curtipendula</i>	3%				
	<i>Euthamia graminifolia</i>	7%				
	<i>Gnaphalium obtusifolium</i>	3%				
	<i>Lotus corniculata</i>	25%				
	<i>Panicum virgatum</i>	2%				
	<i>Rubus allegheniensis</i>	5%				
	<i>Solidago rugosa</i>	5%				
	<i>Trifolium repens</i>	15%				
	Plot 4	<i>Acalypha rhomboidea</i>	2%			
<i>Ambrosia artemisiifolia</i>		5%				
<i>Artemisia vulgaris</i>		7%				
<i>Dactyloctenium aegyptium</i>		3%				

VEGETATION SAMPLING DATA		
Transition Zone Inventory		
<i>Acalypha rhomboidea</i>		<i>Melilotus officinalis</i>
<i>Acer saccharinum</i>		<i>Panicum virgatum</i>
<i>Agrostis gigantea</i>		<i>Phalaris arundinacea</i>
<i>Ambrosia artemisiifolia</i>		<i>Plantago lanceolata</i>
<i>Apocynum cannabinum</i>		<i>Plantago major</i>
<i>Artemisia vulgaris</i>		<i>Plantago rugelii</i>
<i>Barbarea vulgaris</i>		<i>Polygonum pensylvanicum</i>
<i>Bidens frondosus</i>		<i>Polygonum persicaria</i>
<i>Bouteloua curtipendula</i>		<i>Populus deltoides</i>
<i>Cassia nictitans</i>		<i>Potentilla norvegica</i>
<i>Celastrus orbiculata</i>		<i>Potentilla simplex</i>
<i>Centaurea maculosa</i>		<i>Rubus allegheniensis</i>
<i>Chrysanthemum leucanthemum</i>		<i>Rudbeckia hirta</i>
<i>Cichorium intybus</i>		<i>Rumex acetosella</i>
<i>Conyza canadensis</i>		<i>Salix exigua</i>
<i>Coronilla varia</i>		<i>Setaria glauca</i>
<i>Cyperus strigosus</i>		<i>Sisyrinchium angustifolium</i>
<i>Dactyloctenium aegyptium</i>		<i>Solidago altissima</i>
<i>Datura stramonium</i>		<i>Solidago rugosa</i>
<i>Daucus carota</i>		<i>Sorghastrum nutans</i>
<i>Elaeagnus umbellata</i>		<i>Toxicodendron radicans</i>
<i>Elymus virginicus</i>		<i>Trifolium repens</i>
<i>Eragrostis cilianensis</i>		<i>Verbascum thapsus</i>
<i>Erigeron strigosus</i>		<i>Verbena hastata</i>
<i>Euphorbia glyptosperma</i>		<i>Verbena urticifolia</i>
<i>Eupatorium rugosum</i>		
<i>Euthamia graminifolia</i>		
<i>Fraxinus pennsylvanica</i>		
<i>Gnaphalium obtusifolium</i>		
<i>Juncus effusus</i>		
<i>Lamium purpureum</i>		
<i>Lespedeza capitata</i>		
<i>Lespedeza hirta</i>		
<i>Lotus corniculata</i>		
<i>Lythrum salicaria</i>		
<i>Medicago lupulina</i>		

VEGETATION SAMPLING DATA					
Transect 2: Emergent Wetland Zone					
Plot Number	Species Names	Cover	Plot Number	Species Names	Cover
Plot 1	<i>Agrostis hyemalis</i>	30%	Plot 3	<i>Agrostis gigantea</i>	5%
	<i>Cirsium arvense</i>	2%		<i>Aster pilosus</i>	2%
	<i>Cornus amomum</i>	2%		<i>Chrysanthemum leucanthemum</i>	1%
	<i>Epilobium angustifolium</i>	3%		<i>Coronilla varia</i>	2%
	<i>Euthamia graminifolia</i>	2%		<i>Epilobium angustifolium</i>	1%
	<i>Fraxinus pennsylvanica</i>	2%		<i>Euthamia graminifolia</i>	15%
	<i>Impatiens capensis</i>	10%		<i>Glechoma hederacea</i>	1%
	<i>Leersia oryzoides</i>	5%		<i>Juncus effusus</i>	10%
	<i>Lythrum salicaria</i>	2%		<i>Leersia oryzoides</i>	2%
	<i>Parthenocissus quinquefolia</i>	20%		<i>Lobelia siphilitica</i>	40%
	<i>Phalaris arundinacea</i>	10%		<i>Lythrum salicaria</i>	3%
	<i>Pilea pumila</i>	5%		<i>Mentha piperita</i>	1%
	<i>Polgonum sagittatum</i>	5%		<i>Oxalis stricta</i>	1%
	<i>Polgonum virginianum</i>	1%		<i>Plantago major</i>	1%
	<i>Solidago gigantea</i>	1%		<i>Setaria glauca</i>	1%
	<i>Toxicodendron radicans</i>	1%		<i>Solidago altissima</i>	15%
	<i>Typha latifolia</i>	5%			
			Plot 4	<i>Agrostis gigantea</i>	45%
Plot 2	<i>Agrostis gigantea</i>	3%		<i>Daucus carota</i>	8%
	<i>Agrostis hyemalis</i>	50%		<i>Euthamia graminifolia</i>	7%
	<i>Cirsium arvense</i>	1%		<i>Glechoma hederacea</i>	1%
	<i>Cyperus strigosus</i>	1%		<i>Impatiens capensis</i>	1%
	<i>Elaeagnus umbellata</i>	2%		<i>Juncus effusus</i>	2%
	<i>Epilobium angustifolium</i>	1%		<i>Lobelia siphilitica</i>	5%
	<i>Euthamia graminifolia</i>	5%		<i>Lythrum salicaria</i>	3%
	<i>Geum laciniatum</i>	2%		<i>Plantago major</i>	3%
	<i>Juncus effusus</i>	5%		<i>Potentilla simplex</i>	1%
	<i>Juncus tenuis</i>	2%		<i>Rosa multiflora</i>	2%
	<i>Lobelia siphilitica</i>	2%		<i>Solidago altissima</i>	20%
	<i>Lythrum salicaria</i>	8%		<i>Solidago speciosa</i>	3%
	<i>Parthenocissus quinquefolia</i>	2%		<i>Toxicodendron radicans</i>	1%
	<i>Phalaris arundinacea</i>	2%		<i>Verbena urticifolia</i>	1%
	<i>Pilea pumila</i>	5%			
	<i>Plantago major</i>	5%	Plot 5	<i>Agrostis gigantea</i>	30%
	<i>Polgonum sagittatum</i>	2%		<i>Agrostis hyemalis</i>	5%
	<i>Rosa multiflora</i>	2%		<i>Aster pilosus</i>	1%
	<i>Solidago altissima</i>	4%		<i>Chrysanthemum leucanthemum</i>	1%
				<i>Carex vulpinoidea</i>	3%

VEGETATION SAMPLING DATA					
Transect 2: Emergent Wetland Zone					
Plot Number	Species Names	Cover	Plot Number	Species Names	Cover
Plot 5 (cont.)	<i>Cyperus strigosus</i>	3%	Plot 6 (cont.)	<i>Solidago altissima</i>	5%
	<i>Impatiens capensis</i>	1%		<i>Trifolium repens</i>	2%
	<i>Juncus tenuis</i>	2%			
	<i>Lotus corniculata</i>	3%			
	<i>Lythrum salicaria</i>	3%			
	<i>Plantago major</i>	30%			
	<i>Potentilla simplex</i>	1%			
	<i>Rumex crispus</i>	5%			
	<i>Solidago altissima</i>	10%			
	<i>Solidago rugosa</i>	2%			
	<i>Trifolium repens</i>	2%			
	<i>Verbena urticifolia</i>	1%			
Plot 6	<i>Agrostis gigantea</i>	65%			
	<i>Aster pilosus</i>	1%			
	<i>Cyperus strigosus</i>	2%			
	<i>Lythrum salicaria</i>	2%			
	<i>Plantago major</i>	30%			
	<i>Potentilla simplex</i>	5%			
	<i>Setaria glauca</i>	1%			

VEGETATION SAMPLING DATA		
Emergent Wetland Zone Inventory		
Hydrology: Soil moist at surface to 2" inundation.		
Species Names		Species Names
<i>Acer saccharinum</i>		<i>Mentha piperita</i>
<i>Agrostis gigantea</i>		<i>Mentha spicata</i>
<i>Agrostis hyemalis</i>		<i>Mikania scandens</i>
<i>Arisaema triphyllum</i>		<i>Mimulus ringens</i>
<i>Artemisia vulgaris</i>		<i>Oxalis stricta</i>
<i>Asclepias incarnata</i>		<i>Parthenocissus quinquefolia</i>
<i>Aster pilosus</i>		<i>Penstemon digitalis</i>
<i>Boehmeria cylindrica</i>		<i>Phalaris arundinacea</i>
<i>Chrysanthemum leucanthemum</i>		<i>Pilea pumila</i>
<i>Cirsium arvense</i>		<i>Plantago lanceolata</i>
<i>Cornus amomum</i>		<i>Plantago major</i>
<i>Coronilla varia</i>		<i>Plantago rugelii</i>
<i>Carex crinita</i>		<i>Polygonum sagittatum</i>
<i>Carex lurida</i>		<i>Polygonum virginianum</i>
<i>Carex rosea</i>		<i>Populus deltoides</i>
<i>Carex vulpinoidea</i>		<i>Potentilla simplex</i>
<i>Cyperus strigosus</i>		<i>Quercus palustris</i>
<i>Daucus carota</i>		<i>Rosa multiflora</i>
<i>Elaeagnus umbellata</i>		<i>Rubus allegheniensis</i>
<i>Epilobium coloratum</i>		<i>Rumex crispus</i>
<i>Euthamia graminifolia</i>		<i>Sagittaria latifolia</i>
<i>Fraxinus pennsylvanica</i>		<i>Scirpus atrovirens</i>
<i>Geum laciniatum</i>		<i>Setaria glauca</i>
<i>Glechoma hederacea</i>		<i>Sisyrinchium angustifolium</i>
<i>Helenium autumnale</i>		<i>Solidago altissima</i>
<i>Impatiens capensis</i>		<i>Solidago gigantea</i>
<i>Juncus effusus</i>		<i>Solidago rugosa</i>
<i>Juncus tenuis</i>		<i>Solidago speciosa</i>
<i>Leersia oryzoides</i>		<i>Toxicodendron radicans</i>
<i>Lemna minor</i>		<i>Trifolium pratense</i>
<i>Liriodendron tulipifera</i>		<i>Trifolium repens</i>
<i>Lobelia cardinalis</i>		<i>Typha latifolia</i>
<i>Lobelia siphilitica</i>		<i>Ulmus americana</i>
<i>Lotus corniculata</i>		<i>Verbena hastata</i>
<i>Lythrum salicaria</i>		<i>Verbena urticifolia</i>
<i>Melilotus officinalis</i>		

VEGETATION SAMPLING DATA					
Transect 3: Forested Wetland Zone					
Plot Number	Species Names	Cover	Plot Number	Species Names	Cover
Plot 1	<i>Agrostis hyemalis</i>	12%	Plot 3 (cont.)	<i>Lobelia siphilitica</i>	7%
	<i>Echinochloa crusgalli</i>	8%		<i>Lotus corniculata</i>	10%
	<i>Eleocharis obtusa</i>	3%		<i>Lythrum salicaria</i>	5%
	<i>Epilobium coloratum</i>	3%		<i>Plantago major</i>	15%
	<i>Leersia oryzoides</i>	30%		<i>Setaria glauca</i>	5%
	<i>Phalaris arundinacea</i>	8%		<i>Solidago altissima</i>	7%
	<i>Pilea pumila</i>	10%			
	<i>Polygonum punctatum</i>	2%	Plot 4	<i>Agrostis gigantea</i>	10%
	<i>Scirpus atrovirens</i>	3%		<i>Ambrosia artemisiifolia</i>	3%
	<i>Typha latifolia</i>	15%		<i>Aster lanceolatus</i>	1%
	<i>Verbena hastata</i>	1%		<i>Cyperus strigosus</i>	5%
Plot 2	<i>Agrostis gigantea</i>	15%		<i>Elymus canadensis</i>	1%
				<i>Euthamia graminifolia</i>	25%
	<i>Agrostis hyemalis</i>	40%		<i>Helenium autumnale</i>	25%
	<i>Artemisia vulgaris</i>	1%		<i>Lobelia siphilitica</i>	1%
	<i>Cyperus strigosus</i>	5%		<i>Lotus corniculata</i>	2%
	<i>Elymus virginicus</i>	2%		<i>Lythrum salicaria</i>	10%
	<i>Euthamia graminifolia</i>	5%		<i>Pilea pumila</i>	2%
	<i>Helenium autumnale</i>	4%		<i>Plantago major</i>	15%
	<i>Lamium purpureum</i>	1%		<i>Potentilla simplex</i>	3%
	<i>Lythrum salicaria</i>	4%		<i>Setaria glauca</i>	2%
	<i>Oxalis stricta</i>	1%		<i>Trifolium repens</i>	2%
	<i>Plantago major</i>	15%		<i>Verbena urticifolia</i>	1%
	<i>Setaria glauca</i>	5%			
	<i>Solidago altissima</i>	5%	Plot 5	<i>Acalypha rhomboidea</i>	2%
	<i>Solidago rugosa</i>	2%		<i>Agrostis hyemalis</i>	3%
				<i>Ambrosia artemisiifolia</i>	5%
Plot 3	<i>Agrostis gigantea</i>	25%		<i>Artemisia vulgaris</i>	2%
	<i>Agrostis hyemalis</i>	20%		<i>Daucus carota</i>	2%
	<i>Artemisia vulgaris</i>	3%		<i>Echinochloa crusgalli</i>	2%
	<i>Daucus carota</i>	3%		<i>Eupatorium sessilifolium</i>	3%
	<i>Euthamia graminifolia</i>	8%		<i>Euthamia graminifolia</i>	5%
	<i>Helenium autumnale</i>	15%		<i>Helenium autumnale</i>	1%

VEGETATION SAMPLING DATA					
Transect 3: Forested Wetland Zone					
Plot Number	Species Names	Cover	Plot Number	Species Names	Cover
Plot 5 (cont.)	<i>Lythrum salicaria</i>	2%			
	<i>Medicago lupulina</i>	1%			
	<i>Plantago major</i>	5%			
	<i>Potentilla simplex</i>	15%			
	<i>Setaria glauca</i>	1%			
	<i>Solidago altissima</i>	3%			
	<i>Trifolium repens</i>	30%			
	<i>Verbena urticifolia</i>	1%			
Plot 6	<i>Agrostis gigantea</i>	5%			
	<i>Agrostis hyemalis</i>	60%			
	<i>Ambrosia artemisiifolia</i>	3%			
	<i>Artemisia vulgaris</i>	2%			
	<i>Cyperus strigosus</i>	1%			
	<i>Desmodium ciliare</i>	5%			
	<i>Euthamia graminifolia</i>	15%			
	<i>Helenium autumnale</i>	2%			
	<i>Lobelia siphilitica</i>	3%			
	<i>Lythrum salicaria</i>	2%			
	<i>Mentha arvensis</i>	1%			
	<i>Plantago major</i>	3%			
	<i>Potentilla simplex</i>	1%			
	<i>Setaria glauca</i>	7%			
	<i>Solidago altissima</i>	2%			
	<i>Verbena urticifolia</i>	1%			



VEGETATION SAMPLING DATA		
Forested Wetland Zone Inventory		
Hydrology: Soil moist to 2" inundation.		
Species Names		Species Names
<i>Acalypha rhomboidea</i>		<i>Lobelia siphilitica</i>
<i>Acer saccharinum</i>		<i>Lotus corniculata</i>
<i>Achillea millefolium</i>		<i>Ludwigia palustris</i>
<i>Agrostis gigantea</i>		<i>Lythrum salicaria</i>
<i>Agrostis hyemalis</i>		<i>Medicago lupulina</i>
<i>Alliaria petiolata</i>		<i>Mentha arvensis</i>
<i>Ambrosia artemisiifolia</i>		<i>Mikania scandens</i>
<i>Andropogon gerardii</i>		<i>Mimulus ringens</i>
<i>Artemisia vulgaris</i>		<i>Oenothera biennis</i>
<i>Asclepias incarnata</i>		<i>Oxalis stricta</i>
<i>Aster lanceolatus</i>		<i>Oxypolis rigidior</i>
<i>Betula nigra</i>		<i>Phalaris arundinacea</i>
<i>Bidens frondosus</i>		<i>Pilea pumila</i>
<i>Circaea lutetiana</i>		<i>Plantago lanceolata</i>
<i>Cornus amomum</i>		<i>Plantago major</i>
<i>Carex intumescens</i>		<i>Polygonum persicaria</i>
<i>Cyperus strigosus</i>		<i>Polygonum punctatum</i>
<i>Daucus carota</i>		<i>Polygonum virginianum</i>
<i>Desmodium ciliare</i>		<i>Potentilla simplex</i>
<i>Echinochloa crusgalli</i>		<i>Quercus palustris</i>
<i>Elaeagnus umbellata</i>		<i>Rhus typhina</i>
<i>Eleocharis obtusa</i>		<i>Rosa multiflora</i>
<i>Elymus canadensis</i>		<i>Rosa palustris</i>
<i>Elymus virginicus</i>		<i>Rubus allegheniensis</i>
<i>Epilobium coloratum</i>		<i>Rubus occidentalis</i>
<i>Erechtites hieracifolia</i>		<i>Scirpus atrovirens</i>
<i>Eupatorium maculatum</i>		<i>Setaria faberi</i>
<i>Eupatorium perfoliatum</i>		<i>Setaria glauca</i>
<i>Eupatorium rugosum</i>		<i>Solanum dulcamara</i>
<i>Eupatorium sessilifolium</i>		<i>Solidago altissima</i>
<i>Euthamia graminifolia</i>		<i>Solidago rugosa</i>
<i>Glechoma hederacea</i>		<i>Sorghastrum nutans</i>
<i>Helenium autumnale</i>		<i>Toxicodendron radicans</i>
<i>Impatiens capensis</i>		<i>Trifolium repens</i>
<i>Juncus tenuis</i>		<i>Typha latifolia</i>
<i>Lamium purpureum</i>		<i>Verbesina alternifolia</i>
<i>Leersia oryzoides</i>		<i>Verbena hastata</i>
<i>Lepidium campestre</i>		<i>Verbena urticifolia</i>

# **Appendix C: Photographs of Wetland Development**



**Photo 1. Emergent Zone facing west.**



**Photo 2. Emergent Zone facing east.**

**Site Photographs**  
**September 1, 2009**  
**L.E. Carpenter & Company**  
**Wetland Restoration Area**  
**Wharton, Morris County, New Jersey**

JFNew # 040229



11181 Marwill Avenue West Olive, MI 49460  
 Phone 616-847-1680 / Fax 616-847-9970  
[www.jfnew.com](http://www.jfnew.com)





**Photo 3. Forested Zone facing west.**



**Photo 4. Forested Zone facing east.**

**Site Photographs**  
**September 1, 2009**  
**L.E. Carpenter & Company**  
**Wetland Restoration Area**  
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**Photo 5. View of Transition Zone facing south.**



**Photo 6. View of separate Transition Zone facing north.**

**Site Photographs**  
**September 1, 2009**  
**L.E. Carpenter & Company**  
**Wetland Restoration Area**  
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# **Appendix D:**

## **NJDEP Permit 1439-04-0001.1**



**State of New Jersey**  
Department of Environmental Protection

Bradley M. Campbell  
Commissioner

Richard J. Codey  
Acting Governor

Land Use Regulation Program  
P.O. Box 439, Trenton, NJ 08625-0439  
Fax # (609) 292-8115  
[www.state.nj.us/dcp/landuse](http://www.state.nj.us/dcp/landuse)

**FEB 25 2005**

Mr. Nicholas Clevett  
RMT, Inc., Michigan  
2025 E. Beltline Avenue SE, Suite 402  
Grand Rapids, MI 49546

RE: Authorization for Freshwater Wetlands Statewide General Permit No. 4  
File No.: 1439-04-0001.1 (FWW 040001)  
Applicant: L.E. Carpenter & Company  
Block: 301; Lot: 1  
Block: 801; Lots: 3, 4, & 5  
Wharton Borough, Morris County  
Nearest Waterway: Rockaway River  
Passaic River Basin

Dear Mr. Clevett:

The Land Use Regulation Program has reviewed the referenced application for a Statewide General Permit authorization pursuant to the requirements of the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:27A. The proposed activity is authorized by Statewide General Permit No. 4, which allows regulated activities in freshwater wetlands, transition areas and State open waters for the investigation, cleanup or removal of hazardous substances or pollutants, which are undertaken, authorized or otherwise expressly approved in writing by the Department of Environmental Protection (Department).

Limit of Authorized Disturbance

The approved plans are prepared by RMT, Inc., dated February 21, 2005, last revised February 21, 2005, and entitled:

**"L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey"**

- "F3 - Wetland Impact Map", Sheet No. F3 of 7;**
- "F4 - Wetland Restoration Plan", Sheet No. F4 of 7;**
- "F5 - Construction Staging and Excavation Plan", Sheet No. F5 of 7;**
- "F6 - Final Grading Plan", Sheet No. F6 of 7;**
- "F7 - Details", Sheet No. F7 of 7**



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Based on the approved plans, the authorized activity involves the disturbance of approximately 0.42 of an acre of freshwater wetlands and/or State open waters and approximately 0.19 acres of wetland transition areas for removal of contaminated soil and restoration of the disturbed areas. Any additional disturbance of freshwater wetlands, State open waters or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act unless the activity is exempt or a permit is obtained prior to the start of the disturbance from the Land Use Regulation Program.

#### Permit Conditions

The activities allowed by this authorization shall comply with the following conditions. Failure to comply with these conditions shall constitute a violation of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.).

#### Special Conditions

1. All regulated activities at this existing Superfund site must be in accordance with the requirements of the Department's Site Remediation Program and the United States Environmental Protection Agency, including any requirements contained within an approved Remedial Action Workplan.
2. In order to protect the trout maintenance and trout stocked waters of the Rockaway River, any proposed grading or construction activities within the banks of this river are prohibited between March 15 and June 15 of each year. In addition, any activity within the 100-year flood plain or flood hazard area of this watercourse which could introduce sediment into said stream or which could cause an increase in the natural level of turbidity is also prohibited during this period. The Department reserves the right to suspend all regulated activities on site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.
3. All backfill soils shall consist of clean, suitable material free from toxic pollutants in toxic amounts.
4. In addition to restoration of the wetland transition area as shown on the approved plan entitled "F4- Wetland Restoration Plan", the applicant shall also restore an area of wetland transition area not currently shown on the plan. This area extends 50' from the wetlands on the Wharton Enterprise property. These wetlands are classified as Intermediate resource value. This additional wetland transition area is drawn on the attached map portion. The restoration of this additional area shall be consistent with the notes on Sheet No. F4 of 7.
5. The mitigation project must be conducted prior to or concurrent with the construction of the approved project.

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6. Mitigate for the loss of 0.16 acres of emergent wetlands and 0.26 acres of forested and scrub/shrub wetlands through an on-site restoration project as shown on the plan entitled "F4 - Wetland Restoration Plan, L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey", dated February 21, 2005, last revised February 21, 2005, and prepared by RMT, Inc. In the event there is a conflict between the permit conditions and the approved mitigation plan and proposal the permit conditions take precedent.
7. The permittee shall notify the Land Use Regulation Program, in writing, at least thirty (30) days in advance of the start of construction of the wetland mitigation project for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Program.
8. The mitigation designer must be present during critical stages of construction of the mitigation project this includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and their predicted wetland hydrology is realized in the landscape. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. It shall be the prerogative of the mitigation consultant to make changes to the design should field conditions warrant such action.
9. Immediately following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Department this activity has occurred prior to planting of the site.
10. Immediately following the final grading of the mitigation site and prior to planting, the permittee shall notify the Program for a post-grading construction meeting between the permittee, contractor, consultant and the Program. The permittee must give the Program at least thirty (30) days notice prior to the date of this meeting.
11. Within 30 days following the final grading and planting of the mitigation project, the permittee shall submit a final report to the Land Use Regulation Program. The final report shall contain, at a minimum, the following information:
  - a. A completed WETLAND MITIGATION PROJECT COMPLETION OF CONSTRUCTION FORM (attached) which certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;
  - b. As built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;
  - c. Show on the as-built plans that the boundaries of the wetland mitigation area has been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;

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- d. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;
  - e. To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;
  - f. Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;
  - g. The permittee shall post the mitigation area with several permanent signs, which identify the site as a wetland mitigation project and that mowing, cutting, dumping and draining of the property is prohibited; and
  - h. The sign must also state the name of the permittee, LURP permit number along with a contact name and phone number.
12. If the Program determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Program until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.
13. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water after the mitigation project has been constructed. The permittee shall submit monitoring reports to the Land Use Regulation Program no later than December 31<sup>st</sup> of each monitoring year (All monitoring reports must include the standard items identified in the attachment and the information requested below).
14. All monitoring report will include all the following information (see attached monitoring report checklist):
- a. All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;
  - b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring

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report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;

- c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;
  - d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;
  - e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);
  - f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;
  - g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmites australis* (Common reed grass), *Pueraria lobata* (Kudzu), *Typha latifolia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifolia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiflora* (Multiflora rose);
  - h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and
  - i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.
15. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Program will make the finding that the mitigation project is either a

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success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

- a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;
  - b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;
  - c. The site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmites australis* (Common reed grass), *Pueraria montana* (Kudzu), *Typha latifolia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifolia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiflora* (Multiflora rose);
  - d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,
  - e. The proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied.
16. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan to rectify the wetland mitigation site. The plan shall be submitted within 60 days of receipt of the letter from the Program indicating the wetland mitigation project was a failure.
17. The permittee shall assume all liability for accomplishing corrective work should the Program determine that the compensatory mitigation has not been 100% satisfactory. Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Department makes the finding that the mitigation project is successful.

In addition to the above conditions and the conditions noted at N.J.A.C. 7:7A 4.3 and 5.4, the following general conditions must be met for the activity authorized under this Statewide General Permit:

General Conditions:

18. All fill and other earth work on the lands encompassed within this permit authorization shall be stabilized in accordance with "Standards for Soil Erosion and Sediment Control in New Jersey" to prevent eroded soil from entering adjacent waterways or wetlands at any time during and subsequent to construction.

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19. This permit is revocable in accordance with DEP regulations and State law.
20. The issuance of this permit shall not be deemed to affect in any way other actions by the Department on any future application.
21. The activities shown on the approved plans shall be constructed and/or executed in conformity with any notes and details on said plans and any conditions stipulated herein.
22. No change in plans or specifications shall be made except with the prior written permission of the Department.
23. The granting of this authorization shall not be construed to in any way affect the title or ownership of the property, and shall not make the Department or the State a party in any suit or question of ownership of the property.
24. This permit is not valid and no work shall be undertaken pursuant to this authorization until all other required federal, state, and local approvals, licenses and permits necessary for commencement of work onsite have been obtained.
25. A complete, legible copy of this permit shall be kept at the work site and shall be exhibited upon request of any person.
26. The permittee shall allow the Program the right to inspect the construction site and also shall provide the Bureau of Coastal and Land Use Compliance and Enforcement, NJDEP, 401 East State Street, P.O. Box 422, Trenton, New Jersey 08625 with written notification 7 days prior to the start of the authorized work.
27. This authorization is valid for five years from the date of this letter unless more stringent standards are adopted by rule prior to this date.

#### Transition Area

The wetlands affected by this permit authorization are of Ordinary and Intermediate resource value. The wetland located associated with the drainage channel located along the eastern side of the site are classified as Ordinary resource value. No standard transition area is required adjacent to Ordinary resource value wetlands. The wetlands located on the adjacent Wharton Enterprise property are classified as Intermediate resource value and have a standard required transition area or buffer of 50 feet. In addition, all of the wetlands are classified as priority wetlands by the United States Environmental Protection Agency since they drain into the Passaic River Basin. This General Permit includes a transition area waiver that allows encroachment only in that portion of the transition area that has been determined by the Department to be necessary to accomplish the regulated activities. Any additional regulated activities conducted within the standard transition area shall require a separate transition area

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waiver from the Program. Regulated activities within a transition area are defined at N.J.A.C. 7:7A-2.6.

Consistency with the Areawide Water Quality Management Plan

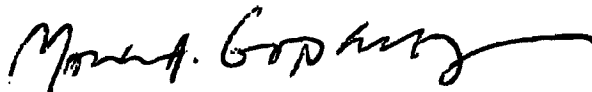
This project has not been reviewed for consistency with the relevant Water Quality Management Plan or Statewide Water Quality Management Planning Rules (N.J.A.C. 7:15). As such, there is no intended or implied approval regarding additional permits which may be required from the Department. For treatment works approvals, the consistency determination will be performed by the Bureau of Engineering and Permitting (North/South) which may be contacted at (609) 292-6894 for North (Middlesex, Hunterdon and Counties north) or (609) 633-1139 for South (Mercer, Monmouth and Counties south). For general information concerning the water quality management planning process, please contact the Division of Watershed Management at (609) 633-1179.

Appeal of Decision

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton NJ 08625. This request must include a completed copy of the Administrative Hearing Request Checklist.

If you have any questions regarding this authorization, please contact Susan Michniewski of our staff at (609) 633-9277. Please reference the above file number.

Sincerely,



Mark A. Godfrey, Supervisor  
Morris & Bergen Counties Region  
Bureau of Inland Regulation

Attachments (map sketch, mitigation forms)

- c. Anthony Cinque, Site Remediation Program
- Jodale Legg, Land Use Regulation Program – Mitigation Unit
- Nadine White, Land Use Regulation Program
- Bureau of Coastal and Land Use Compliance and Enforcement
- Wharton Borough Clerk
- Wharton Borough Construction Official
- Wharton Borough Planning Board
- Wharton Borough Environmental Commission